DOCUMENT RESUME

ED 158 505 EC 111 906

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TITLE Assessment and Remediation of Sensory-Perceptual-Motor Dysfunction.
PUB DATE Jun 78
NOTE 10p.; Paper presented at the World Congress on Future Special Education (First, Stirling, Scotland, Jun 25 - July 1, 1978)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Clinical Diagnosis; Conceptual Schemes; Early Childhood Education; Elementary Education; Learning Disabilities; *Models; *Perceptually Handicapped; *Perceptual Motor Learning; *Remedial Programs

ABSTRACT

The paper reports on the evaluation techniques and remediation programing for children (3 to 12 years old) with sensory-perceptual-motor dysfunction. A model for ordering assessment information and selecting therapeutic remediation activities is considered. A sample diagnostic sheet outline is included. (Author/SBH)

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ASSESSMENT AND REMEDIATION OF SENSORY-PERCEPTUAL-MOTOR DYSFUNCTION

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For the past eight years sensory-perceptual-motor dysfunction and remediation techniques have been studied extensively at the University of Kansas Perceptual-Motor Clinic. During that time the sensory-perceptual-motor development of over 350 children has been evaluated, and individual remediation programs have been designed and implemented successfully for more than 100 youngsters between the ages of 3 to 12 years of age.

The purposes of this paper are to report on the evaluation techniques and remediation programming for children with sensory-perceptual-motor dysfunction. A model for ordering assessment information and selecting therapeutic remediation activities will share the focus.

Most contemporary perceptual-motor theorists agree that perceptual-motor development is contingent upon four dimensions. First, sensory input must occur, that information must then be integrated or processed within the central nervous system, motor output must result, and feedback of what has occurred should be available to the learner. Although the importance of these four dimensions are discussed in many theories, few, if any, assessment instruments and remediation programs include all aspects. It is therefore, necessary to utilize a variety of tests and therapeutic activities to provide a comprehensive development profile and program for the child with sensory-perceptual-motor dysfunction.

As a guideline to insure appropriate attention is given to all levels

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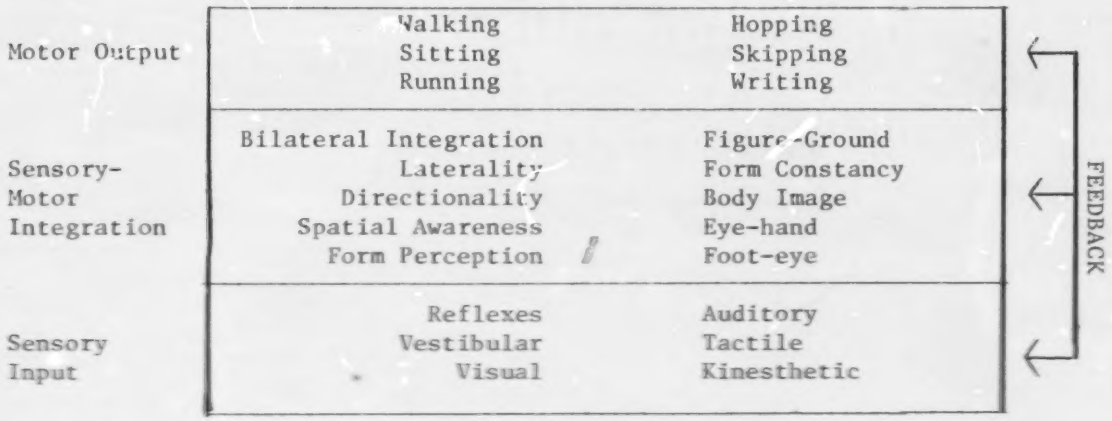
of sensory-perceptual-motor progression we developed a simplistic model to use for ordering and interpreting test results and designing remediation programs. The model delineates some sensory input systems, sensory-motor integration processes and motor output products.

SENSORY-PERCEPTUAL-MOTOR DEVELOPMENT MODEL



Perceptual-motor evaluation instruments used include Fiorentino's Reflex test, Purdue Perceptual-Motor Survey, Lincoln Oseretsky Motor Development Scale, Frostig's Test of Visual Perception, and selected tactile, kinesthetic and foot-eye coordination tasks. Audiologists and visual developmental specialists provide their performance findings for the auditory and visual systems.

When all the test results are available, the item and/or subtest scores plus behavioral observations are sequenced according to the sensory-perceptual-motor development model, beginning with observations concerning the sensory-input systems and progressing through the motor output tasks.

Once performance is delineated for each component, results are interpreted in light of normative standards for the age of the child being evaluated. When demonstrated performance lags normative standards by one year or more, the area is indicated as one in which remediation is needed. After all areas of

dysfunction are identified, a sequential remediation program is designed for each child.

Therapeutic activities are selected to promote development in the identified areas of dysfunction. Because of their basic importance, sensory input systems receive immediate attention. Therapy is provided for each dysfunctioning system by a trained professional on a one to one basis. After functioning of each of these systems reaches normative standards for the child's age, dysfunctioning sensory-motor integration processes are focused on. Therapeutic activities are selected from a variety of theories to promote development of each specific component (i.e., bilateral integration, spatial awareness, form perception, etc.) Once sensory integration performance reaches normative standard, activities are selected to facilitate motor output behaviors.

This approach has proven successful in over 90% of the children treated in the Perceptual-Motor clinic. Followup data indicate children released from the clinic performing to normative standards continue to develop at the same rate as their "normal" peers.

DIAGNOSTIC SHEET OUTLINE

Child's Name | Examiner's Name

Date of Birth | Date of Report

Perceptual-Motor Development as of (month) 1976:

A. Reflexes: (listed in order from lowest level to highest level)

1. Spinal Level

a. extensor thrust - uncontrolled extension of stimulated leg on the right side only.

2. Brain Stem Level

a. tonic labyrinthine supine - dominant extensor tone persists in both arms and legs.

b. associated reaction - mirroring in opposite limb and increase in total body tone upon stimulus to left and right.

c. positive supporting reaction - no release of extensor tone in legs

3. Midbrain Level

a. body righting acting on the body - body rotates as a whole and not segmentally to the right side only.

b. labyrinthine righting - no head righting elicited in prone position.

c. amphibian reaction - no flexion could be elicited in the arm, hip or knee on the right side of the body.

4. Automatic Movement Reactions

a. landau reflex - spine and legs extend when head is passively raised.

b. protective extensor thrust - delayed reaction in right arm

5. Cortical Level

a. four-foot kneeling - no protective or equilibrium reaction to the right.

b. standing-hopping - delayed reaction to the light and backward tilt,

c. simian posture - could not assume position and maintain balance.

B. Tactile:

1. Localization of single points of stimulation to hand(s) and cheek(s) on the right and left side.
2. Localization of double points of stimulation to hands, to cheeks, to hand and cheek opposite sides of body, and to hand and cheek same side of body.
3. Any aversion to being touched - expressed either verbally or physically.
4. Responses to tactile praise.
5. Any excessive signs of fidgeting or discomfort when seated.

C. Visual:

1. Binocular Tracking - describe performance.
2. Monocular Tracking - describe performance with right and left eye.
3. Convergence/Divergence - describe performance.
4. Cover Tests - single and alternating cover tests, describe any movement noted in either eye (exophoric, esophoric, hyperphoric, hypophoric) and whether it is slight or extreme.
5. Preferred eye - right, left or no preference.
6. Visual attentiveness or distractibility.
7. Any signs of visual distress during activities such as excessive blinking, watering of eyes, rubbing eyes, head close to paper or the turning of the head to one side or the other.
8. Frostig Figure-ground = 5-2 (perceptual age equivalency score)

D. Auditory:

1. Do directions need to be repeated?
2. Auditory attentiveness or distractibility.
3. Any difficulty remembering directions or performing them in proper sequence.

E. Perceptual Motor Integration:

1. Static Balance

   a. any significant difference between one foot balance with eyes

open and eyes closed.

b. is there a preferred balance foot.

c. is there a marked decrease in balance as the base of support is narrowed.

2. Dynamic Balance

a. directional movements on the beam (forward, backwards, sideways) - describe each briefly.

b. two-foot jump (Purdue) - describe.

c. one-foot hop (Purdue) - describe and note any difference between right and left.

d. skipping (Purdue) - describe pattern.

e. alternating hopping patterns (Purdue) - describe.

f. walking gait - describe gait.

g. running pattern - describe pattern and smoothness of run.

h. backwards heel-to-toe walk (Lincoln) - note % and describe if 100% is not achieved.

i. standing vertical jump (Lincoln) - note % and describe if 100% is not achieved.

j. regaining balance after turning (Lincoln) - note %.

k. flexibility-spatial awareness (Lincoln) - note %.

3. Body Image

a. identification of body parts - note errors and hesitancy and whether both members of paired parts are touched.

b. knowledge of left and right (Laterality).

c. imitation of movement (Purdue) - describe.

d. angels-in-the-snow (Purdue) - describe.

e. Kraus-Weber (Purdue) - ability to raise and hold chest and leg position for required time.

f. self-drawing - note maturity of drawing for age and inclusion of detail for age, note parts omitted from drawing.

4. Midline

a. note any indication of midline difficulty on the Purdue 1) single circle, 2) double circles, 3) lateral line, and 4) vertical lines.

b. any indication of midline jump on tracking activities.

c. any avoidance of midline crossing during desk activities such as shifting paper to one side or moving body to one side of chair.

d. lack of arm/leg opposition when throwing.

5. Spatial Relations

a. difficulty with backwards or sideways movements on beam?

b. difficulty with backwards heel-to-toe walk?

c. spacing of letters and words in handwriting sample.

d. obstacle course (Purdue) - moving over, under and between objects, and does he understand the meaning of words such as forward, backwards, sideways, over, under and between (noted during testing on balance beam and obstacle course).

e. Frostig Position in Space = 4-7 (perceptual age equivalency score)
Spatial Relations = 5-0 (perceptual age equivalency score)

f. organization of forms (Purdue) = describe type of organization (vertical, circular, left to right).

6. Fine Motor

a. any difficulty taking off and putting on shoes and socks?

b. control over pencils and crayons - grip, pressure, control?

c. any signs of overflow during fine motor tasks?

d. two or more simultaneous voluntary movements (Lincoln) - note any difficulties with synchronous or asynchronous movements or rhythm with the hands and hands and feet.

e. motor speed (Lincoln) - note any difficulties in synchronous

movements.

f. spatial control of the hands (Lincoln) - note any difficulties with or without visual assistance and with or without boundaries.

g. motor planning (Lincoln) - note any difficulties with simple or complex motor planning with the hands or with the fingers.

h. rhythmic writing (Purdue) - describe any difficulties.

i. Frostig Eye-Motor Coordination = 5-2 (perceptual age equivalency).

j. any signs of frustration during fine motor tasks.

k. preferred hand - right, left, no preference.

7. Eye Hand Coordination

a. catching skills - briefly describe catching ability with a playground ball and note % achieved on Lincoln with right and left hand.

b. throwing skills - briefly describe throwing ability with a playground ball and note % achieved on Lincoln with right and left hand.

c. preferred hand - right, left, no preference.

8. Eye Foot Coordination

a. kicking skills - briefly describe kicking ability with a stationary playground ball.

b. preferred foot - right, left, no preference.

9. Form Perception and Constancy

a. reproduction of forms (Purdue) - describe performance in terms of form and organization to drawings.

b. Frostig Form Constancy = 5-0 (perceptual age equivalency score).

10. Color, Number and Letter Recognition and Size Constancy

(only used with children under five years)

a. can he name, identify and match colors?

b. can he organize objects according to size?

c. can he name and recognize the letters of the alphabet?

d. can he name and recognize numbers - up to what point?

F. Behavior and Comments:

1. brief description of build.

2. cooperative, willing to try all tasks?

3. self-concept?

4. distractibility level?

5. responses to verbal and tactile praise?

6. any additional comments you feel are pertinent.

G. Conclusions:

1.

2.

3.

H. Recommendations:

1.

2.

3.

_____, Director

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Note: This instrument was developed by Dorothy Miller, Supervisor, University of Kansas Perceptual Motor Clinic, Lawrence, Kansas